

### ABSTRACT OF THE DISCLOSURE

An ultrasonic-wave propagation-time measuring method and gas concentration sensor are disclosed in which a reception wave which has been transmitted and received by an ultrasonic element 5 is subjected to full-wave rectification in order to obtain a full-wave-rectified wave, which is then integrated by an integration circuit 37 to obtain an integral value. A peak value of the integral value is held by a peak-hold circuit 39. As to detection of gas concentration, a threshold-level calculation section 21e sets a reference value on the basis of the peak value, and a point in time when the amplitude of a reception wave having undergone full-wave rectification is judged by a comparator 43 to have reached the reference value is regarded as an arrival time. Subsequently, a gas concentration is determined on the basis of a period between the emission time and the arrival time.